

TOWARDS AN EFFECTIVE ENVIRONMENTAL EDUCATION: A SURVEY IN THE MOROCCAN EDUCATION SYSTEM

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ABSTRACT

In the face of environmental problems, effective teaching about the environment is more than necessary. However, Environmental Education confronts several obstacles at the didactic level. The traditional method dominates the professional practices of teachers. The objective of this research is to make the teaching of Environmental Education more effective. For performing the analysis, we adopted a quantitative methodology based on a questionnaire for teachers of Science life and earth and the other for learners. This research finding shows that teachers need ongoing training in Environmental Education. These courses are essential to offer students a more effective teaching. Also, this research finding shows that students are motivated in ecological outings and that they show great autonomy in their learning processes.

KEYWORDS: *Environmental Education, Didactics, Ecological Outings, Motivation & Autonomy*

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1. INTRODUCTION

In a global and regional context marked by the problems of the environment, it is desirable and, in fact, essential factor to build an environmental culture. The well-being of human populations, like the equilibrium of ecosystems, is based on natural resources. However, at the planet level, there is an increasing depletion of resources on one hand, and an increase in sustained resource exploitation on the other. Around the world, lack of water is a problem that dates back even to several decades.

Current data on climate change, pollution and increased exploitation of water resources have prompted the countries concerned to engage in an in-depth reflection on this issue of water resources. This problem of water resources is, in fact, only one aspect of a more comprehensive problem of sustainable development, that is to say of all enterprises with a view to improving the quality of life through the development of an economy, that is more respectful of people and their environment.

Following many environmental and ecological issues, the international community has become aware of the dangers associated with these issues. There was consensus on the need for environmental education to raise awareness of these issues on one hand, and to develop positive attitudes towards the environment on the other. Our country is no exception; the integration of the Environmental Education is made in the new educational reform of the education system.

However, teaching Environmental Education in the qualifying secondary Science life and earth program

would have a limited impact on learners' ideas and behaviors. Thus, several questions and hypotheses are worth rising in order to find answers to the challenges and obstacles faced for the development of quality of Environmental Education. In this research, we will try to answer the following Hypothesis: A teaching of the Environmental Education based on field trips is likely to guarantee the quality.

2. ENVIRONMENTAL EDUCATION: THEORIES, GOALS, AND DEVELOPMENT

In this section, we present a summary about the history, the theories and concept of environmental education from different point of views.

2.1 The Development of Environmental Education

In the 1960s, Environmental Education (EE) actors were ecologists or Naturalist Scientists who, each in their own territory, tried to convey a message of respect and protection of nature (Baldi et al ., 2013). The institutionalization of environmental affairs is progressing with the formation of the Ministry for the Protection of Nature and the Environment in several countries of the world and the appearance of a new school discipline: Ecology. The mutual efforts of naturalists, educators and conservation organizations were crowned by the organization of the first United Nations Conference on the Human Environment; held in Stockholm in 1972 (Kiss & Sicault, 1972).

This represents the first official historical reference point of the Environmental Education on an international scale. Among the recommendations of this conference, retaining the need to build an international framework for the development of environmental education was: "Environmental Education facing the global environmental crisis" (Godart, Belayew, Soutmans, Tixhon, & Van Dam, 2008). This effect has shocked the world by provoking a great global debate in the form of several meetings at the regional level.

For the first time, The "Belgrade Charter" has defined the objective of Environmental Education: "To train a conscious and concerned world population and the problems associated with it, a population that has the knowledge, skills, state of mind, motivations and sense of commitment that allow him to work individually and collectively to solve current problems, and to prevent new ones from arising "(Barry , 1976).

In 1977, the Tbilisi conference showed an interest in the environment outside this "problem" aspect. We begin to perceive that the environment can be interesting in itself (Sauvé, 1999). Ten years later, in 1987, UNESCO and UNEP organized an International Congress in Moscow, with the aim of developing an international strategy for action on environmental education and training for the 1990s (Pinion, 2017).

The Earth Summit, held in Rio in 1992, represents Morocco's first effective participation in international conferences on the environment and sustainable development. Indeed, since this participation, Morocco has always displayed its openness to cooperation and international partnership, by signing several international agreements relating to the preservation of its environmental heritage. These conventions concern biodiversity, climate change and the fight against desertification (Brahmi & Eloutassi, 2017).

2.2 Definition and Goals of Environmental Education

According to Goffin (1998), the Environmental Education is a global and sustainable process that concerns all the dimensions of the person to be physical, biological, emotional, intellectual, spiritual, motor, active and creative, etc. It aims to allow people in understanding their environment, behave in a positive way and properly assess the environmental impact

of their own way of life. It also aims to promote its active participation in public life in sustainable development.

According to Anne-Suze Amicy (2016), the Environmental Education has five objectives that have been clarified by UNESCO in the final report of the Intergovernmental Conference in Tbilisi:

- **Awareness:** We must help social groups and individuals to become aware of the global environment and related problems, help raise awareness to this issue.
- **Knowledge:** We must help social groups and individuals to gain a varied experience and a fundamental knowledge of the environment and related problems.
- **State of mind:** Social groups and individuals must be supported to acquire a sense of values, feelings of interest in the environment and the motivation required to participate actively in the improvement and protection of the environment.
- **Competence:** Help social groups and individuals to acquire the skills necessary to identify and solve environmental problems.
- **Participation:** Social groups and individuals must be given an opportunity to actively contribute at all levels to the solution of environmental problems.

2.3 Didactic Interest in an Exit Related to Environmental Education

The current Science life and Earth program includes outings to present some ecological and environmental concepts. An output fits perfectly in pedagogy field, according to which the learning would follow as given below:

- Concrete didactical situations giving learners an opportunity to build their knowledge from experiences in the environment.
- Teaching situations that put students in the position of a real environmental problem that could lead to their questioning attitude in order to provide solutions.

In addition, the output allows a direct contact with the environment and leads to an awareness, an involvement with an active commitment to preserve, restore or act on an environment subject to harmful actions. Indeed, the output, in addition to awareness is a direct action on the environment. However, the design and realization of the outputs are marked by difficulties and problems that can be stated in the following way (Brahim, 2002):

- Issues related to student safety.
- Institutional or administrative difficulties.
- Problems of management and supervision of the exit.
- Funding problems and technical resources.
- Obstacles to the realization of field trips.

Environmental Education truly enables its methodology in the field to consider the contents of the current horizontal and interdisciplinary way. It encourages students to reach the high taxonomic level of synthesis and even invention because they now feel the need to seek solutions to their experience. It touches the true meaning of their

existence. However, the teacher in the Moroccan education system is not always trained to prepare and properly manage an outing to study environmental or ecological issues. Indeed to prepare an exit, the teacher will face obstacles and difficulties to design and implement an exit project.

These obstacles are related to the ecological or environmental meaning of the concepts. Such barriers hinder the design and implementation of didactical situations that could really help to build meaningful and sustainable knowledge (Brahim 2002, Hamouchi, Essafi & El Hajjami 2010). Generally, the educational actions are limited to sessions of description and enumeration. There are rarely activities that encourage intellectual activities of analysis, interpretation and argumentation. Environmental Education as delivered is not necessarily part of a science education. Hence, it is important that the teachers undergo continuous training in an Environmental Education to improve the teacher's professional practice and to fulfill the purpose of decision-makers of the Science earth and life curriculum (Brahim, 2002).

3. ENVIRONMENTAL EDUCATION IN MOROCCAN CURRICULUM: A QUANTITATIVE SURVEY

3.1 The Methodology Followed

In this research, we adopted a quantitative methodology. The target population is Moroccan middle and high school students and their teachers. Data collection was done through an online questionnaire. Indeed, the questionnaire is the most appropriate way to quantify data in the form of figures. In order to approach the teachers legally, a request to the School Principals was submitted in advance for obtaining a formal authorization.

3.2 Results and Analysis

In this section, we will present the results of our survey. We will start by presenting the level of motivation of students in both middle and high school followed by teacher section, where we have tested to see the training they undertook during last year and analyze the way in which they prepare their courses in the Science life and Earth subject.

3.2.1 Student's Level of Motivation for the Subject

To test the level of motivation and satisfaction of students in the Science life and Earth subject, we have asked more than 100 students from different levels and classes in both high schools and middle schools in Morocco to take part in our survey and respond to different questions related to the subject.

Figure 1 represents the response of 102 students from different high schools of Morocco, and their response to a series of question concerning their level of motivation, when they are asked about their experience with the subject of Science life and Earth. We have divided the level of motivation in linear line from 1 to 5, from rarely or never motivated to most of the time motivated.

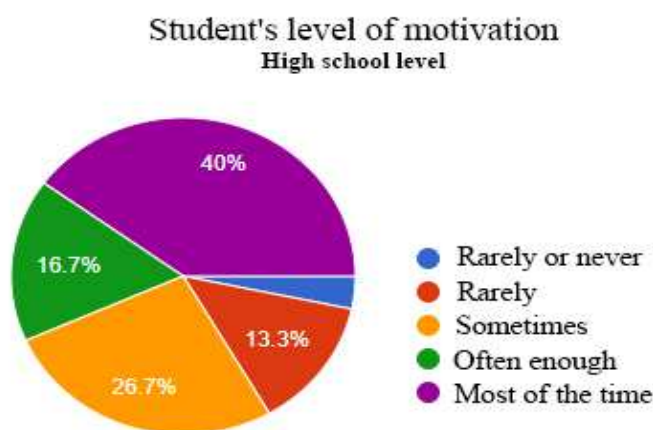


Figure 1: High School Student's Level of Motivation.

We could say that the majority of the students, that is 40% of the students from different specialities and different levels in high school are motivated most of the time when they first enroll in the Science life and Earth subject. We could also notice that 16.7% of the students are often enough motivated with respect to the concepts taught in the subject. 26.7% of the students are sometimes motivated to participate in a discussion in the subject. While, only 13.3% of the students who participated in our survey mentioned that they are rarely motivated about concepts taught in the subject.

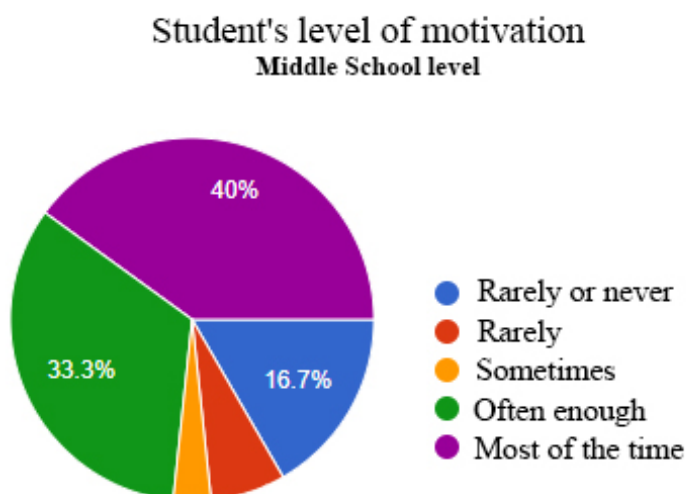


Figure 2: Middle School Student's Level of Motivation.

Figure 2 represent the response of 97 students from different Middle schools of Morocco, and their response to a series of question concerning their level of motivation, when they are asked about their experience with the subject of Science life and Earth. We have divided the level of motivation in linear line from 1 to 5, from rarely or never motivated to most of the time motivated.

We could observe in figure 2 that the majority of the students, as high as 40% of the students from different specialities and different levels in the middle school are motivated most of the time, when they first enroll in the Science life and earth subject. We could also notice an increase in the percentage in comparison to high school students; that is 33.3% of the middle school students are often enough motivated with respect to the concepts taught in the subject. An

increase is also observable in the percentage of the students who are rarely interested and motivated to study the Science life and Earth subject in comparison to the high school students. In middle school, 16.7% of the students who participated in our survey mentioned that they are rarely or never motivated about concepts taught in the subject.

3.2.2 Teacher's Training Activities in the Science Life and Earth Subject

The second part of our survey focuses mainly about the teachers of Science life and Earth subject in both middle and high school. The objective is, in this context is not to test the level of motivation and satisfaction of teachers, but to have a detailed idea about the problems they are facing while teaching this subject. We have focused mainly in the training that they have received in the past 12 months and also in the due course of their preparation of the courses in the subject of Science life and Earth. We have asked more than 100 teachers from different levels and classes in both high schools and middle schools in Morocco to take part in our survey and respond to different questions related to the subject.

Figure 3 represents the response of 150 teachers from different high schools and middle schools of Morocco, and their response to a direct question concerning their participation in some training in the subject of Science life and Earth during the last 12 months. We have used the yes/no grid to have a more direct answer, which will allow us to localize the problem.

**Teacher's participation in training activities
in the field of SVT for the last 12 months**
High school and middle School level

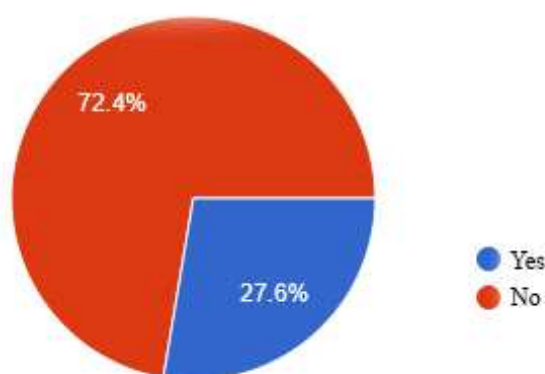


Figure 3: Teacher's Participation in Training Activities in the Field of SVT for the Last 12 Months.

We could observe from figure 3 that, the vast majority of the teachers, i.e., 72.4% from both levels in middle school and high school, who took our survey, did not take any kind of training activities in the field of Science life and Earth for the last year. Whereas only 27.6% of the teachers have taken some sort of training in the past 12 months. It is to be noted that wherever the teachers answered 'yes' to this particular question, it is found that they have paid on their own to take part in training in the private sector.

Level of preparation of teachers of Science life and earth

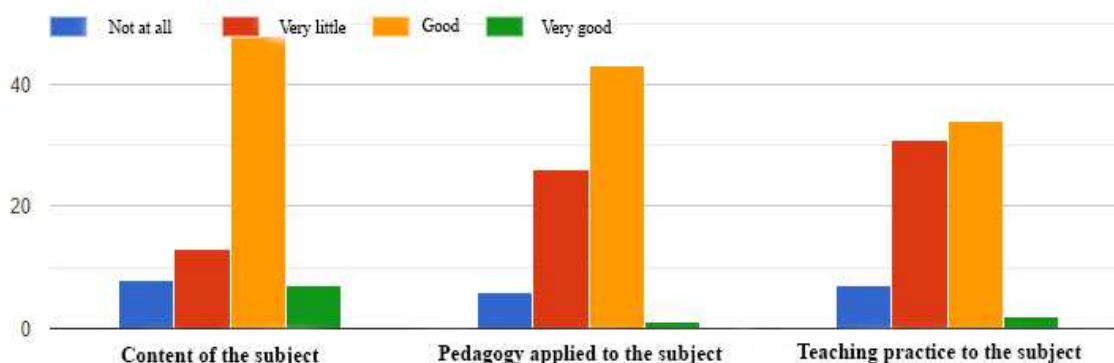


Figure 4: Level of Preparation of Teachers of Science Life and Earth.

Figure 4 represents the response of 150 teachers from different high schools and middle schools of Morocco, and their response to a series of question concerning the way in which they prepare their courses and level of this preparation in the subject of Science life and Earth. We have divided the level of preparation in linear line from 1 to 5, from 'not at all' to 'most' of very good preparation.

We could observe from figure 4 that the preparation of the teachers in Science life and Earth subject is divided into three main aspects: the content preparation of the subject, the pedagogy applied to the subject and the teaching practice of the subject.

- **The Preparation of the Content of the Subject:** We could see firstly from figure 4 that majority of the teachers who participated in our survey prepares the content in a good way (more than 45%). Secondly, the percentage of the teachers who do not prepare the content of the course at all or very little are more or less equal, both of them are below 20%. Whereas, only 8% of the teachers prepared the content of the subject in a methodological manner.
- **The Preparation of the Pedagogy Applied to the Subject:** we could see firstly from figure 4 that, majority of the teachers who participated in our survey prepares the content in a good way (more than 40%). Secondly, the percentage of the teachers who were underprepared with the pedagogy applied to the subject, took the second place with more than 25%. While only 5% of the teacher did not prepare pedagogy applied to the subject. And finally, it is shocking to note that only 1% of the teachers is well prepared with prepared the pedagogy applied to the subject.
- **The Preparation of the Teaching Practice to the Subject:** We could see firstly from figure 4 that the percentage of the teachers who prepared the teaching practice to the subject in a good way and in a very little way are more or less equal, both of them are more than 25%. Secondly, only 5% of the teachers did not even prepare the teaching practice to the subject. 5% of the teachers did not prepare pedagogy applied to the subject. And finally, it is shocking to note that only 1% of the teachers is well prepared with the teaching practice to the subject

4. DISCUSSIONS

The sciences of life and the earth is an experimental discipline; great importance must be given to practical activities.

These activities are a vital source of extrinsic (external) motivation of learners. Indeed, motivation is the essence of the process of all learning (Chekour, Chaali, Laafou, & Janati-idrissi, 2015). Moreover, motivated learners do not just stop asking questions on outings, but also provides answers by cooperating and collaborating with their peers.

"Learning by doing" ensures effective and sustainable learning (ref), as it increases motivation, initiative and autonomy (Maharani & Laelasari, 2017). The results obtained in this research are in harmony with the literature. Indeed, we found a strong relation between the increase of the motivation of the learners and the teaching practices based on the experimental approach based on the ecological exists.

The results of this research show that Science life and Earth teachers focus on the content taught i.e. the didactic transposition of the concepts taught and the relationship between teachers and knowledge. In order to ensure effective teaching, the teacher-student relationship must be in the foreground. Continuing education in psychology in pedagogy and science didactics is of fundamental importance. In fact, the teachers of the Science life and Earth need these continuous trainings in order to improve their professional practices and their preparation for the educational contents.

5. CONCLUSIONS

In a global and regional context marked by environmental problems, a place has been given to environmental issues and this through educational programs, through the integration of environmental education into the environment school curriculum (Hamouchi et al., 2010). We noted the near absence of land exists for Environmental Education. In relation to this problem, teachers of the EE are invited to design, implement and exploit the outings of grounds efficiently.

The numerous pedagogical extensions can be the factors of a dynamic process of education in which interdisciplinary takes on its full meaning. The methodologies required in this era must be modern and offer teachers and learners an opportunity to invest their intellectual and emotional skills in the topics proposed.

Environmental Education requires the practice of the inductive method and thus recalls that the role of teaching and education is not just about teaching students an encyclopedic knowledge, but it is also more to make them actors of the environment by offering them the tools that will enable them to conceptualize knowledge and thus become self-learning graduates.

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